

CLAIMS

1. A laser pulse controlling circuit that is connected with a controlling unit having a first illumination level setting unit that sets a first illumination level of a laser device to erase information recorded in an optical disk, and a second illumination level setting unit that sets a second illumination level of the laser device to record information into the optical disk, and that, when the laser device is driven with laser pulses having the first and the second illumination levels, causes the first and the second illumination level setting units to set the first and the second illumination levels corresponding to a predetermined ratio of the first illumination level to the second illumination level, wherein
the laser pulse controlling circuit,
based on regularity that
the relation between: a manipulated variable for causing the second illumination level setting unit to execute adjustment of the second illumination level; and the inverse of the ratio, with reference to the first illumination level, is a straight line that necessarily passes one point for a predetermined first illumination level, and that
an intersecting angle between the straight line and a predetermined reference line is

proportional to the predetermined first illumination level,

calculates the manipulated variable that is correlated with the first illumination level

5 corresponding to the optical disk, and with the inverse of the ratio, and

causes the second illumination level setting unit to set the second illumination level corresponding to the calculated manipulated variable.

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2. The laser pulse controlling circuit of claim 1, comprising a storing unit that stores data for identifying the regularity, wherein

the laser pulse controlling circuit, when
15 calculating the manipulated variable, uses data for identifying the regularity stored in the storing unit.

3. The laser pulse controlling circuit of claim 2, wherein

20 the data for identifying the regularity is: the one straight line; the one point; the proportionality factor between a slope of the straight line and the first illumination level, and wherein

the laser pulse controlling circuit, when
25 calculating the manipulated variable, determines the straight line that is correlated with the first illumination level corresponding to the optical disk,

and with the inverse of the ratio, based on the data for identifying the regularity.

4. The laser pulse controlling circuit of claim 2,
5 wherein

 the laser pulse controlling circuit sets the data for identifying the regularity with the use of two different coordinate data that are sampled for the predetermined first illumination level, and that are
10 determined on coordinate axes of the manipulated variable versus the inverse of the ratio.

5. The laser pulse controlling circuit of claim 1, comprising a storage unit that stores the first
15 illumination level and the ratio correlated with each identifying data of the optical disk, wherein

 the laser pulse controlling circuit, when calculating the manipulated variable, obtains from the storage unit the first illumination level and the ratio
20 correlated with the identifying data read from the optical disk.

6. The laser pulse controlling circuit of claim 1, wherein the controlling unit comprises:

25 an APC processing unit that executes an APC (Automatic Power Control) that reduces the deviation between an observed level and a specified level for the

first illumination level of the laser device;

the first illumination level setting unit that sets the first illumination level to the specified level based on the deviation; and

5 the second illumination level setting unit that sets the second illumination level to a level which is level-shifted from the set first illumination level by a specified level-shift amount that is the manipulated variable for setting the second illumination level, and

10 wherein

the laser pulse controlling circuit,

when the first illumination level is adjusted, specifies the specified level to the APC processing unit, and

15 when the second illumination level is adjusted, specifies the specified level-shift amount to the second illumination level setting unit.